

MEASUREMENT: Attributes, Units, and Measurement Sense

Grade 2	Grade 3	Grade 4
Overall Expectation #1		
- Estimate, measure, and record length, perimeter, area, mass, capacity, time, and temperature, using non-standard units and standard units	- Estimate, measure, and record length, perimeter, area, mass, capacity, time, and temperature, using standard units	- Estimate, measure, and record length, perimeter, area, mass, capacity, volume, and elapsed time, using a variety of strategies
Specific Expectations		
- Choose benchmarks – in this case, personal referents – for a centimetre and a metre to help them perform measurement tasks		
- Estimate and measure length, height, and distance, using standard units (i.e., centimetre, metre) and non-standard units	- Estimate, measure, and record length, height, and distance, using standard units (i.e., centimetre, metre, kilometre)	- Estimate, measure, and record length, height, and distance, using standard units (i.e., millimetre, centimetre, metre, kilometre)
- Record and represent measurements of length, height, and distance in a variety of ways		
- Select and justify the choice of a standard unit (i.e., centimetre or metre) or a nonstandard unit to measure length		
	- Draw items using a ruler, given specific lengths in centimetres	- Draw items using a ruler, given specific lengths in millimetres or centimetres
- Estimate, measure, and record the distance around objects, using non-standard units	- Estimate, measure, and record the perimeter of two-dimensional shapes, through investigation using standard units	- Estimate, measure using a variety of tools and strategies, and record the perimeter and area of polygons
- Estimate, measure, and record area, through investigation using a variety of non-standard units	- Estimate, measure (i.e., using centimeter grid paper, arrays), and record area	
- Estimate, measure, and record the capacity and/or mass of an object, using a variety of non-standard units	- Choose benchmarks for a kilogram and a litre to help them perform measurement tasks	- Estimate, measure, and record the mass of objects, using the standard units of the kilogram and the gram
	- Estimate, measure, and record the mass of objects using the standard unit of the kilogram or parts of a kilogram	
	- Estimate, measure, and record the capacity of containers, using the standard unit of the litre or parts of a litre	- Estimate, measure, and record the capacity of containers, using the standard units of the litre and the millilitre
		- Estimate, measure using concrete materials, and record volume, and relate volume to the space taken up by an object
- Tell and write time to the quarter-hour, using demonstration digital and analogue clocks	- Read time using analogue clocks, to the nearest five minutes, and using digital clocks and represent time in 12-hour notation	- Estimate, measure (i.e., using an analogue clock), and represent time intervals to the nearest minute
- Construct tools for measuring time intervals in non-standard units		
		- Estimate and determine elapsed time, with and without using a time line, given the durations of events expressed in five-minute intervals, hours, days, weeks, months, or years
- Use a standard thermometer to determine whether temperature is rising or falling	- Estimate, read (i.e., using a thermometer), and record positive temperatures to the nearest degree Celsius (i.e., using a number line; using appropriate notation)	
- Describe how changes in temperature affect everyday experiences	- Identify benchmarks for freezing, cold, cool, warm, hot, and boiling temperatures as they relate to water and for cold, cool, warm, and hot temperatures as they relate to air	

MEASUREMENT: Measurement Relationships

Grade 2	Grade 3	Grade 4
Overall Expectation #2		
- Compare, describe, and order objects, using attributes measured in non-standard units and standard units	- Compare, describe, and order objects, using attributes measured in standard units	- Determine the relationships among units and measurable attributes, including the area and perimeter of rectangles
Specific Expectations		
	- Compare standard units of length (i.e., centimetre, metre, kilometre) and select and justify the most appropriate standard unit to measure length	- Select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure the side lengths and perimeters of various polygons
	- Compare and order objects on the basis of linear measurements in centimetres and/or metres in problem-solving contexts	- Describe, through investigation, the relationship between various units of length (i.e., millimetre, centimetre, decimetre, metre, kilometre)
	- Compare and order various shapes by area, using congruent shapes and grid paper for measuring	
- Describe, through investigation, the relationship between the size of a unit of area and the number of units needed to cover a surface	- Describe, through investigation using grid paper, the relationship between the size of a unit of area and the number of units needed to cover a surface	
		- Determine, through investigation, the relationship between the side lengths of a rectangle and its perimeter and area
		- Pose and solve meaningful problems that require the ability to distinguish perimeter and area
		- Compare, using a variety of tools, two-dimensional shapes that have the same perimeter or the same area
- Compare and order a collection of objects by mass and/or capacity, using non-standard units	- Compare and order a collection of objects, using standard units of mass (i.e., kilogram) and/or capacity (i.e., litre)	- Compare and order a collection of objects, using standard units of mass (i.e., gram, kilogram) and/or capacity (i.e., millilitre, litre)
		- Select and justify the most appropriate standard unit to measure mass (i.e., milligram, gram, kilogram) and the most appropriate standard unit to measure the capacity of a container (i.e., millilitre, litre)
		- Determine, through investigation, the relationship between millilitres and litres
		- Determine, through investigation, the relationship between grams and kilograms
- Determine, through investigation, the relationship between days and weeks and between months and years	- Solve problems involving the relationships between minutes and hours, hours and days, days and weeks, and weeks and years, using a variety of tools	- Solve problems involving the relationship between years and decades, and between decades and centuries